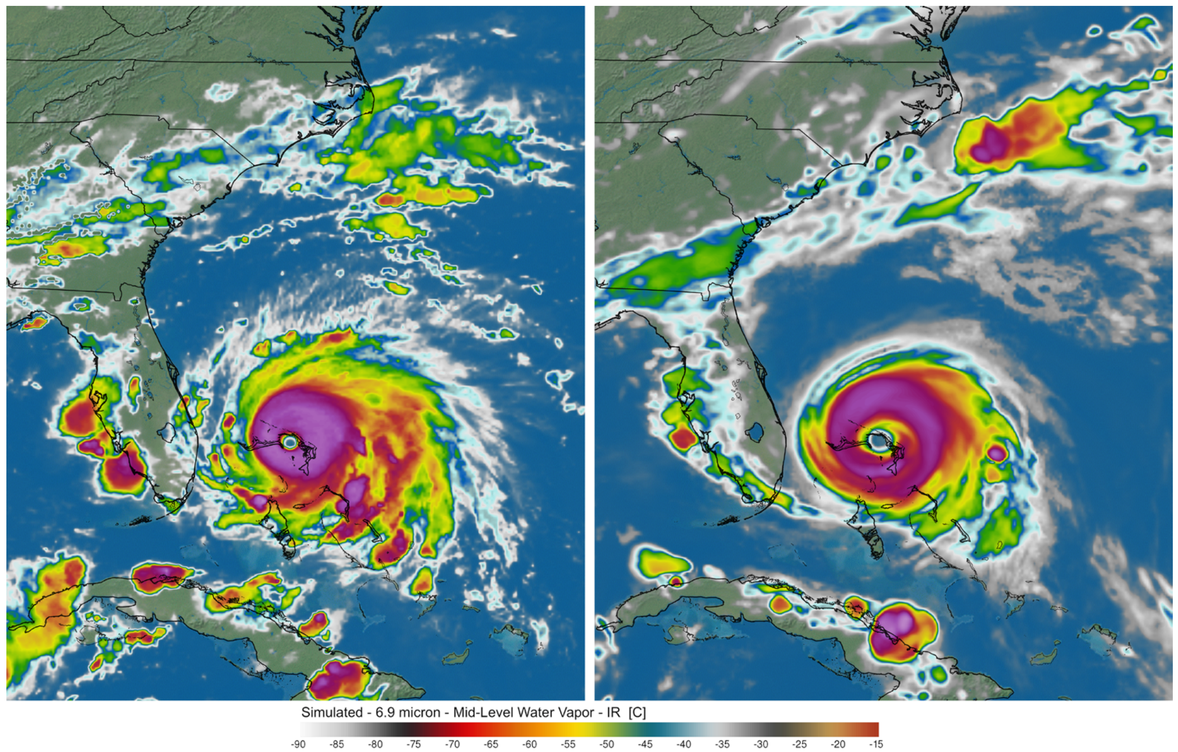
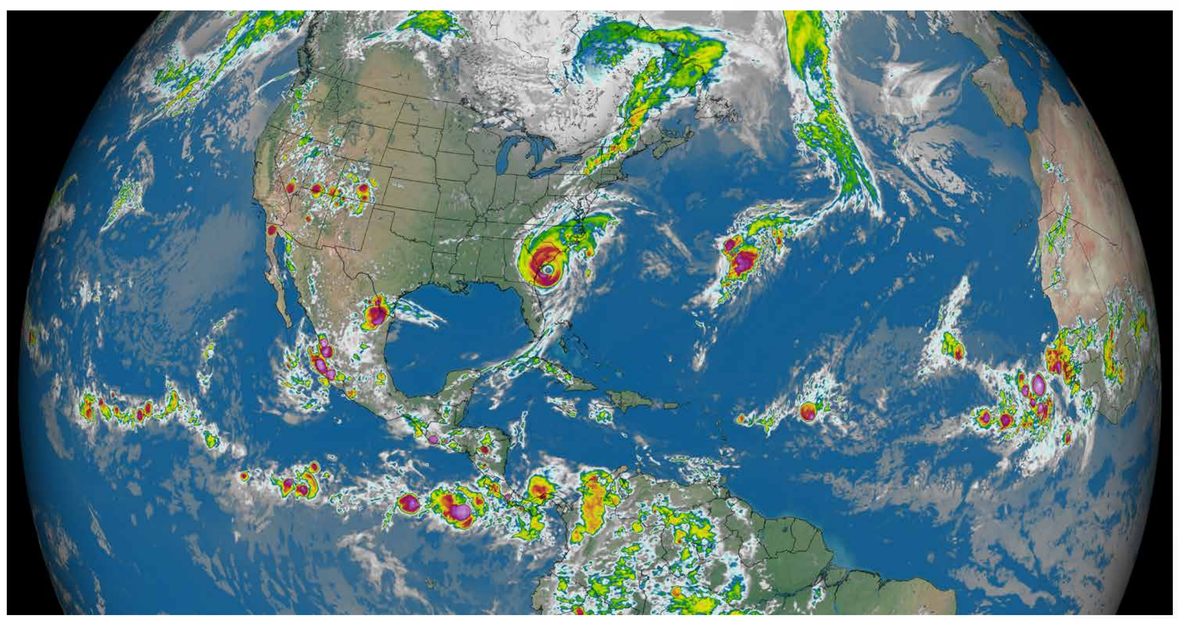



A satellite observation (left) and a 48-hour Goddard Earth Observing System (GEOS) model forecast (right) show the cloud structure of Hurricane Dorian centered over the northern Bahamas on September 2, 2019. At this time, Dorian was an intense Category 5 hurricane with a large well-defined eye. The bright red and pink colors circling the cleared eye represent the coldest and most intense convection/storminess in the eye wall and circulation of Dorian. *William Putman, NASA/Goddard*



As shown in this GEOS model forecast, by September 5, 2019 Hurricane Dorian had moved north along the southeast United States coast, bringing tropical storm and hurricane conditions to portions of Florida, Georgia, and the Carolinas. The 5-days-in-advance GEOS forecast was extremely accurate in terms of Dorian's location along the South Carolina coast and the simulated cloud field. *William Putman, NASA/Goddard*

National Aeronautics and
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# The Future of Global Numerical Weather Prediction with GEOS

**The Goddard Earth Observing System (GEOS) model's prediction capabilities span scales from hourly forecasts of convective-scale storms to seasonal Earth system prediction. NASA scientists can explore the future of global numerical weather prediction (NWP) today with the recent expansion of the NASA Center for Climate Simulation (NCCS) Discover supercomputer to 6.7 petaflops. Using up to 80,000 Intel Skylake processors, an advanced version of GEOS produced near-real-time, global weather forecasts at the 6-kilometer resolutions that will be typical of operational NWP systems in the year 2025 and beyond. GEOS forecasts including the Category 5 Hurricane Dorian showed a significant improvement over the current production GEOS forecasts.**

*William Putman, NASA Goddard Space Flight Center*

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